

We claim:

1. A concentrated quaternary ammonium compound solution comprising:
a quaternary ammonium compound with a concentration from greater than about 10% by weight; and
at least one solubility enhancing agent.
2. The solution of claim 1, wherein said solubility enhancing agent is an alcohol or a polyglycol.
3. The solution of claim 2, wherein said solubility enhancing agent is selected from the group consisting of a monohydric alcohol, a dihydric alcohol, a trihydric alcohol, a polyethylene glycol and a combination thereof.
4. The solution of claim 3, wherein said monohydric alcohol is an aliphatic alcohol, said dihydric alcohol is a glycol or a derivative thereof, and said trihydric alcohol is glycerol or a derivative thereof.
5. The solution of claim 4, wherein said quaternary ammonium compound ranges from greater than about 10% by weight to about 60% by weight.
6. The solution of claim 5, wherein said quaternary ammonium compound ranges from greater than about 10% by weight to about 50% by weight.
7. The solution of claim 6, wherein said quaternary ammonium compound ranges from greater than about 10% by weight to about 40% by weight.
8. The solution of claim 7, wherein said quaternary ammonium compound ranges from greater than about 10% weight to about 30% weight.
9. The solution of claim 8, wherein said quaternary ammonium compound ranges from about 15% weight to about 25% by weight.

10. The solution of claim 5, wherein said solubility enhancing agent is present at a concentration of up to about 70% by weight.

5 max is 60%

11. The solution of claim 10, wherein said solubility enhancing agent is present at a concentration ranging from about 10% by weight to about 60% by weight.

claim 1 req. > 10% / 11 is broader

12. The solution of claim 6, wherein said alcohol is present at a concentration ranging from about 10% by weight to about 60% by weight.

50% is max

13. The solution of claim 7, wherein said alcohol is present at a concentration ranging from about 10% by weight to about 60% by weight.

7: 40% is max

14. The solution of claim 13, wherein said quaternary ammonium compound is present at a concentration of about 40% by weight and said alcohol is present at a concentration ranging from about 50% by weight to about 60% by weight.

15. The solution of claim 14, wherein said quaternary ammonium compound is present at a concentration of about 40% by weight and said alcohol is present at a concentration ranging from about 55% by weight to about 60% by weight, and wherein said solution further comprises water up to about 5% by weight.

16. The solution of claim 15, wherein said quaternary ammonium compound is present at a concentration of about 40% by weight, said alcohol is present at a concentration of about 57% by weight and said water is present at about 3% by weight.

17. The solution of claim 14, wherein said alcohol is propylene glycol.

18. The solution of claim 15, wherein said alcohol is propylene glycol.

19. The solution of claim 16, wherein said alcohol is propylene glycol.

20. The solution of claim 5, wherein said quaternary ammonium compound is present at a concentration of about 40% by weight and said alcohol is present at a concentration of about 50% by weight.

21. The solution of claim 5, wherein said quaternary ammonium compound is present at a concentration of about 20% by weight and said alcohol is present at a concentration of about 50% by weight.

22. The solution of claim 20, wherein said alcohol is a combination of ethyl alcohol and propylene glycol.

23. The solution of claim 21, wherein said alcohol is a combination of ethyl alcohol and propylene glycol.

24. The solution of claim 5, wherein said quaternary ammonium compound is present at a concentration of about 40% by weight and said alcohol is glycerol and is present at a concentration of up to about 20% by weight.

25. The solution of claim 1, wherein said quaternary ammonium compound is selected from the group consisting of an alkylpyridinium salt, a tetra-alkylammonium salt, and alkylalicyclic ammonium salt.

26. The solution of claim 25, wherein said quaternary ammonium salt is an alkylpyridinium salt.

27. The solution of claim 26, wherein said alkylpyridinium salt is cetylpyridinium chloride.

28. The solution of claim 16, wherein said quaternary ammonium compound is selected from the group consisting of an alkylpyridinium salt, a tetra-alkylammonium salt, and alkylalicyclic ammonium salt.

29. The solution of claim 28, wherein said quaternary ammonium salt is an alkylpyridinium salt.

30. The solution of claim 29, wherein said alkylpyridinium salt is cetylpyridinium chloride.

31. A concentrated quaternary ammonium compound solution consisting essentially of:

a quaternary ammonium compound with a concentration from greater than about 10% by weight; and
at least one solubility enhancing agent.

32. The solution of claim 31, wherein said quaternary ammonium compound is present at a concentration of about 40% by weight and said solubility enhancing agent is present at a concentration ranging from about 50 to about 60% by weight.

33. The solution of claim 32, wherein said quaternary ammonium compound is cetylpyridinium chloride and said solubility enhancing agent is propylene glycol.

34. A quaternary ammonium compound solution consisting essentially of:
a quaternary ammonium compound with a concentration of up to about 1% by weight;
at least one solubility enhancing agent; and
water.

35. The solution of claim 34, wherein said quaternary ammonium compound has a concentration of about 0.01% to about 1%.

36. The solution of claim 35, wherein said solubility enhancing agent is an alcohol or a polyglycol.

olution of cla
sting of a mo
, and a comb

lycol or a

G. _____

contacting said food product with a microbial growth inhibiting effective amount of a quaternary ammonium compound, wherein the application time of said compound is for at least a fraction of a second to prevent the growth of microorganisms on said food product.

wherein said

42. The method of claim 41, wherein said application time is for about 1 second
ut 5 seconds.

add a^3

add B^4

Add

70/21

[illegible]